

Claims

What Is Claimed Is:

1. A multiple layer tubing for conveying a fluidic media, the tubing comprising:
 - an inner layer made of a material compatible with the fluidic media;
 - an outer layer made of a copolyester ether (COPE) material; and
 - an intermediate layer for bonding the outer layer to the inner layer.
2. A tubing as recited in claim 1, wherein the material of the inner layer comprises high density polyethylene.
3. A tubing as recited in claim 2, wherein the material of the intermediate layer comprises ethylene-vinyl acetate (EVA).
4. A tubing as recited in claim 1, wherein the material of the inner layer comprises a polyurethane.
5. A tubing as recited in claim 1, wherein the material of the intermediate layer comprises ethylene-vinyl acetate (EVA).
6. A multiple layer tubing for conveying a fluidic media, the tubing comprising:
 - an inner layer made of a material compatible with the fluidic media;
 - at least one second layer for bonding a third layer to the inner layer; and
 - at least one third layer made of a copolyester ether (COPE) material.
7. A tubing as recited in claim 6, wherein the material of the inner layer comprises high density polyethylene.

8. A tubing as recited in claim 6, wherein the material of the inner layer comprises a polyurethane.
9. A tubing as recited in claim 6, wherein the material of each intermediate layer comprises ethylene-vinyl acetate (EVA).
10. A tubing as recited in claim 1, wherein the inner layer, the outer layer and the intermediate layer are each free of PVC.
11. A tubing as recited in claim 1, wherein the outer layer provides a barrier against diffusion of carbon dioxide.
12. A medical system for connection in fluid flow communication with a patient, the medical system comprising:
 - at least one medical device; and
 - a multiple layer tubing having one end connected to the at least one medical device and the other end for connection to the patient, the multiple layer tubing comprising an inner layer made of a material compatible with the fluidic media, at least one second layer for bonding a third layer to the inner layer; and at least one third layer made of a copolyester ether (COPE) material.
13. A medical system as recited in claim 12, wherein the at least one medical device comprises a reservoir containing an insulin formulation connected in fluid flow communication with the multiple layer tubing.
14. A medical system as recited in claim 13, wherein the at least one medical device further comprises a pump for providing a regulated flow of the insulin formulation from the reservoir and through the multiple layer tubing.
15. A tubing as recited in claim 13, wherein the material of the inner layer comprises high density polyethylene.

16. A tubing as recited in claim 13, wherein the material of the inner layer comprises a polyurethane.

17. A tubing as recited in claim 12, wherein the material of each second layer comprises ethylene-vinyl acetate (EVA).

18. A tubing as recited in claim 12, wherein the at least one second layer comprises no more than one second layer and the at least one third layer comprises no more than one third layer.

19. A tubing as recited in claim 12, wherein the inner layer, each outer layer and each intermediate layer are free of PVC.

20. A tubing as recited in claim 12, wherein at least one outer layer provides a barrier against diffusion of carbon dioxide.

21. A process of making a multiple layer tubing comprising:
forming an inner layer made of a material compatible with the fluidic media;
forming an outer layer made of a copolyester ether (COPE) material; and
forming an intermediate layer that bonds the outer layer to the inner layer.

22. A process as recited in claim 21, wherein forming an inner layer comprises extruding a tube-shaped inner layer of a first material.

23. A process as recited in claim 22, wherein forming an outer layer comprises extruding a tube-shaped outer layer of a COPE material.

24. A process as recited in claim 21, wherein forming an outer layer comprises extruding a tube-shaped outer layer of a COPE material.

25. A process as recited in claim 21, wherein forming the inner, outer and intermediate layers comprises co-extruding the layers at the same time.
26. A process as recited in claim 21, wherein the material of the inner layer comprises high density polyethylene or polyurethane.
27. A process as recited in claim 21, wherein the material for the second layer comprises ethylene-vinyl acetate (EVA).
28. A process as recited in claim 21, wherein forming an inner layer comprises extruding high density polyethylene or polyurethane.
29. A process as recited in claim 21, wherein forming a second layer comprises extruding ethylene-vinyl acetate (EVA).
30. A process as recited in claim 21, wherein the inner layer, the outer layer and the intermediate layer are each formed free of PVC.
31. A process as recited in claim 21, wherein the outer layer is formed of a material that provides a barrier against diffusion of carbon dioxide.
32. A tubing for conveying a fluidic media, the tubing comprising at least one layer of COPE material selected to be suitably compatible with the media.
33. A tubing as recited in claim 32, wherein the tubing comprises no more than one layer of COPE material.
34. A tubing as recited in claim 32, wherein the tubing consists essentially of no more than one layer of COPE material.

35. A tubing as recited in claim 32, wherein the tubing comprises a plurality of layers of COPE material.

36. A tubing as recited in claim 35, wherein an intermediate layer is interposed between each layer of COPE material, each intermediate layer for bonding two adjacent layers of COPE material.

37. A tubing as recited in claim 32, wherein the at least one layer of COPE material comprises a plurality of co-extruded layers of COPE material.

38. A process of making a tubing for conveying a media comprising:
selecting a COPE material that is suitably compatible with the media;
forming a tubing having at least one layer of the selected COPE material.

39. A process as recited in claim 38, wherein forming a tubing having at least one layer of the selected COPE material comprises forming no more than one layer of the selected COPE material.

40. A process as recited in claim 38, wherein forming a tubing having at least one layer of the selected COPE material comprises forming a plurality of layers of selected COPE material.

41. A process as recited in claim 40, further comprising forming an intermediate layer between at least two of the plurality of layers of selected COPE material, each intermediate layer for bonding two adjacent layers of selected COPE material.

42. A process as recited in claim 38, wherein forming a tubing having at least one layer of the selected COPE material comprises co-extruding a plurality of layers of selected COPE material.